Space Weather Forecast

Issued on Monday, 06 June 2022 at 13:31 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor to Moderate Storm intervals 06 June due to CME arrival.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with one common class flare producing a small Coronal Mass Ejection (CME) at 05/1225 UTC, however this has been analysed as non-Earth Directed. Another CME was observed leaving the southwest quadrant of the Sun around 05/1315 UTC due to a filament eruption, again this is thought to be non-Earth directed and thus there has been no Earth directed CMEs observed during the 24 hour period.
There are presently 4 numbered sunspot regions on the visible side of the Sun. All regions are currently small and simple, with no significant signs of development.

Solar Wind / Geomagnetic Activity: The solar wind, was at background levels through much of the period, but the arrival of a CME at 06/0920 UTC caused a jump in all parameters. The solar wind speed has been slow, generally below 300 km/s but increased to 300-320 km/s upon the arrival of the CME. The interplanetary magnetic field strength was weak, but increased to moderate (8-11 nT), with notable deviation to negative in the north-south component. Geomagnetic activity was mainly Quiet (Kp 1-2), but a period of Unsettled (Kp 3) was observed 06/0900-1200 UTC.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Very Low, with only a very slight chance of Moderate activity.

Solar Wind / Geomagnetic Activity: CME effects are expected during day 1 (6th), before easing on day 2 (7th). No other solar wind enhancements are currently expected through the remainder of the period, however late on day 2 into day 3 (7th/8th) there is a slight chance of a glancing impact from another CME which left the northeast quadrant of the Sun on the 4th June. Unsettled to Active geomagnetic activity is expected initially, with a chance of Minor/Moderate storming. Through day 2 activity should become predominantly Quiet as CME effects wane. However there is a slight chance of Unsettled to Minor Storm geomagnetic activity late on the day 2 into day 3 (7th/8th) if the 4th of June CME glances Earth.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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